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<u>L6</u>	11 and 705/40	12	<u>L6</u>
<u>L5</u>	L2 and 705/40	10	<u>L5</u>
<u>L4</u>	13 and 705/40	6	<u>L4</u>
<u>L3</u>	L2 and deposit	66	<u>L3</u>
<u>L2</u>	L1 and (bank with account or bank near account or bank adj account)	128	<u>L2</u>
<u>L1</u>	replenish\$ near2 account	423	<u>L1</u>

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L3: Entry 49 of 66

File: USPT

Apr 23, 2002

DOCUMENT-IDENTIFIER: US 6377938 B1

TITLE: Real time subscriber billing system and method

Brief Summary Text (9):

When multi-metering pulses are used in public telephones, a caller typically deposits money in the telephone, and the total value deposited is displayed in a display unit attached to the phone. Alternately, the caller can insert a smart card or a memory card with a prepaid balance into a reader on the telephone or dial a number indicated on the card, and the balance on the card is displayed in the display unit. As the call progresses, the balance displayed is decremented by the charge for each pulse. For example, if a customer deposits \$1.00 in a telephone and places a local call which costs \$1.00 for every three minutes, and pulses representing \$0.10 are generated every three minutes, the balance displayed is decremented by \$0.10 every three minutes. In this example, the customer can talk for thirty minutes before the pulses zero the deposit.

Detailed Description Text (21):

The subscriber's usable balance can be represented by a Pulse Use Limit (PUL) and a Pulse Use Credit (PUC) stored in the Billing Data Memory 74. The PUL and the PUC are expressed as a number of pulses, the PUL representing a deposit paid by a subscriber, and the PUC representing a credit limit established for the subscriber. The Processor 60 can be programmed to continuously compare the number of pulses generated with the PUL or the PUC or to decrement the PUL or the PUC by one pulse for every pulse generated during a call.

Detailed Description Text (34):

There are various ways in which a subscriber can be informed of charges. For example, as the deposit or remaining credit limit is decremented during a call, the subscriber can be notified of the remaining balance through audible tones or a digital voice signal. A series of tones representing specific balances, e.g., a \$10 balance remaining, a \$5 balance, a \$2 balance, or one minute remaining, can be transmitted to the subscriber. A digital voice signal can also be used to announce the value of the subscriber's remaining balance or time remaining before the call is cut off.

Detailed Description Text (41):

FIG. 2b is a flowchart illustrating an exemplary real time billing process performed by the CO switch shown in FIG. 2a. As shown in FIG. 2b, the process begins at step 2000 at which a subscriber with a prepaid deposit or credit limit goes off hook, and the CO switch 100 verifies the subscriber's record which includes the subscriber's telephone number, the COS, the subscriber's usable balance, etc.

Detailed Description Text (71):

At step 3100, the tandem CO switch 120 determines whether the call has ended. If the call has not ended, the process returns to step 3085. From step 3045, or if, at step 3090 it is determined that the call disconnect routine has been invoked, at step 3100 it is determined that the call has ended, or at step 3070 it is determined that the call attempt has ended, the process proceeds to step 3115 at which the tandem CO switch 120 disconnects the call and informs the Apps.CPU 300 of

the disconnect time so that the Apps.CPU can update the VSUB record of the final charge value. The App.CPU 300 updates the subscriber record with the final charge value at step 3117 and creates the final CDR for this call. The process then ends at step 3120. According to a third embodiment of the present invention, rather than having one deposit or credit for each subscriber, there can be one debit or credit account covering multiple subscribers. This can be useful, for example, in a business that has more than one line or a Public Call Office (PCO) operated by a franchise or independent operator.

Detailed Description Text (72):

According to this embodiment, a group of trunks, subscriber lines, or services can be identified as a single Billing Group (BG). All the features of the real time subscriber billing system, including prepaid deposits and credit limits, can be applied to the BG as a whole in the same way as previously described for a single subscriber. The trunks, lines, and services associated with the BG can originate in more than one switch.

Detailed Description Text (174):

Another feature provided by the real time subscriber billing system according to the present invention is electronic funds transfer. Using this feature, the subscriber can authorize the telephone company to electronically transfer funds from a bank account or a credit card account to replenish the subscriber's balance on a regular basis.

Detailed Description Text (176):

The real time subscriber billing system can also be the basis of a credit/debit card charging system. That is, a subscriber can charge products or services, such as power, gas, water, etc., to his or her prepaid deposit or credit limit. For regular charges such as utility services, the billing can be automatically charged to the subscriber's account and paid to the utility company by the telephone company. For other purchases, each transaction can be approved by the subscriber and can be computed only if the subscriber's balance is not exceeded.

Detailed Description Text (177):

The procedures for charging the subscriber's account can be similar to those described above for calling from a remote telephone. In addition, the subscriber can arrange for the increase of deposits or the payment of the account by any third party.

Detailed Description Text (178):

According to another aspect of the present invention, a Lineless Telephone Number (LTN) is provided. A subscriber who places a deposit or is granted a credit limit can be assigned a telephone number without requiring the subscriber to have a physical telephone line. The number can be answered by a prerecorded voice. A subscriber can retrieve messages on his or her LTN and can leave messages for all callers or for specific callers. This service can be particularly useful for subscribers that cannot afford a private phone or pager. Subscribers can also use the LTNs to place calls. When calls are placed from the home switch or from a remote telephone, billing can be processed and managed as previously described for regular subscribers placing such calls.

CLAIMS:

7. The system of claim 1, wherein the credit limit established for the subscriber at least in part based on a deposit paid by the subscriber.
24. The method of claim 18, wherein the credit limit established for the subscriber at least in part based on a deposit paid by the subscriber.

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	DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR		
<u>L13</u>	L12 and (bank or institution)	138	<u>L13</u>
<u>L12</u>	L11 and (payment or remittance)	146	<u>L12</u>
<u>L11</u>	I9 and deposit near account	150	<u>L11</u>
<u>L10</u>	L9 and circular	107	<u>L10</u>
<u>L9</u>	account near (bill\$ or invoic\$)	3194	<u>L9</u>
<u>L8</u>	L1 and 705/34	0	<u>L8</u>
<u>L7</u>	L1 and 705/35	0	<u>L7</u>
<u>L6</u>	L1 and 705/38	0	<u>L6</u>
<u>L5</u>	L1 and 705/40	0	<u>L5</u>
<u>L4</u>	L1 and customer with account	0	<u>L4</u>
<u>L3</u>	L1 and (replenish\$ near account or account near replenish\$ or replenish\$ with account or account with replenish\$ or replenish\$ adj account or account adj replenish\$)	0	<u>L3</u>
<u>L2</u>	L1 and replenish\$ near account	0	<u>L2</u>
<u>L1</u>	circular near (bill\$ or invoic\$)	269	<u>L1</u>

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